INFORMATION REPORT INFOR

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COUNTRY Yugoslavia

SUBJECT Research in the Selectivity of Military Radio and Intercept Receivers

REPORT

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50X1-HUM

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THIS IS UNEVALUATED INFORMATION.

a report describing the development in the Vlado Bagat Laboratory, Zadar, of a new application of a crystal filter to improve selectivity in radio and intercept receivers. The filter is completely miniaturized, utilizing transistors for the purpose. A circuit diagram of one of the four (or six) sections of the filter is included.

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SUBJECT: Perfectioning of Military Radio and Intercept Receivers in the Vlado Bagat Laboratory, Zadar

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1. A fundamental reuirement in professional and military radio receivers for long distance traffic and, even more so, in intercept receivers is that of selectivity, involving as a concrete possibility the separation of two adjacent signals and of combatting jamming. Generally the problem is solved with crystal filters or magnetostriction (mechanical) characteristed by a very rapid "cut"; these filters, though optimum from the point of view of rapidity of have however a width in the fixed band. To obtain a width in the variable band necessitates, therefore, that the filter be sustained; this involves an increase in the cost and size of the apparatus. 50X1-HUM

2. The Yugoslavs have reportedly developed a crystal filter for the variable pass bands that solves the above problems. The principal involved is not new, 1/ but the pracitcal application of the device is new. It is a filter with several sections (4 or 6); each section has a piezoelectric crystal and two oscillating circtuis, whose resonance frequency varies, in a converse sense (one on the increase and the other on the diminution) in order to achieve a response curve whose peak remains invariable but whose width varies; obviously the maximum width is achieved when the two circuits are isochronous with the crystal. In so far as the response curve are concerned, one is very rapid because it is due to the crystals and the other is much better and greater than the number of stages. 50X1-HUM In practice the width may vary from 0.2 kcs to 3.5 kcs; the rapidity of the results 1/ from 0.5 kcs per -60 db, or 1.8 kcs per -60 db (with 6 circui 50X1-H 50X1-HUM

3. The originality of the device is in the use of the "varicap" diode to shift the syntony of the resonant circuits; the width of the band is moreover controlled by a potential regulated by a potentiometer. The filter may therefore be mounted at the point most adaptable on the device, independently of the postion of the "band width" control to which it is linked only by connecting with "c.c." As separate elements the individual sections of the filter and amplifier are composed of transistors; all of the filter, moreover, is miniaturized. The filter circuit diagram - one section only - is attached as Fig. 1.

1 Comment. As stated above, the principle involved in the circuit is not new; it has already been used The method 50X1-HUM employed for the control is new, however, and the technical results from it are noteworthy. The application of the device in hearing aids and intercept equipment offers potential practical advantages. 50X1-HUM

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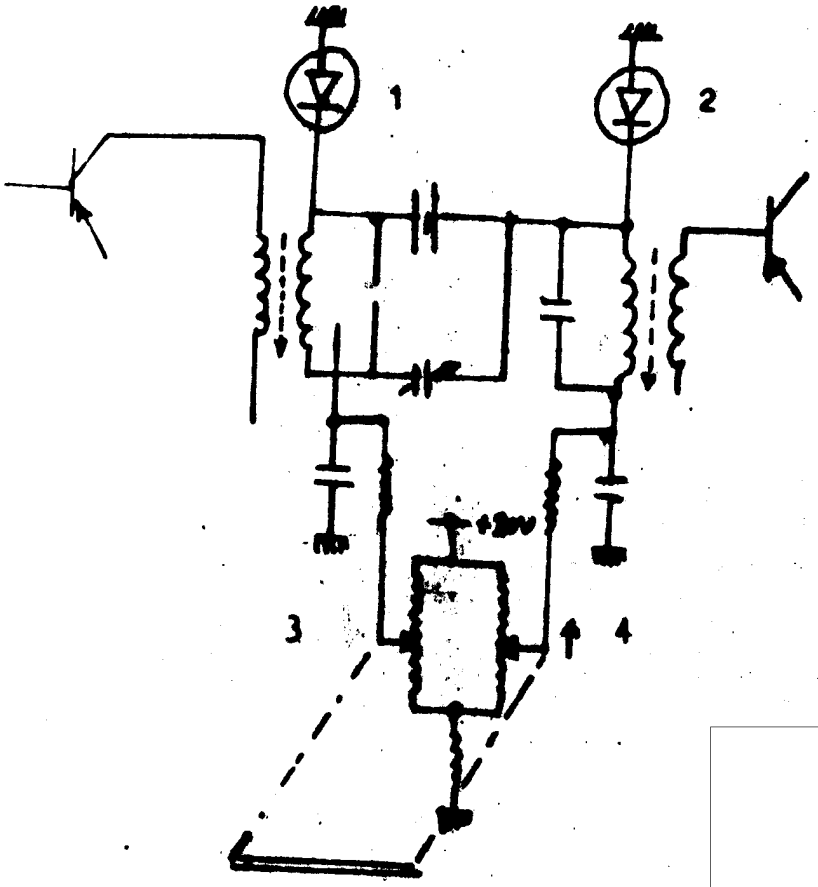

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